

## Claims

1. Sintered silicon carbide bodies with a porosity of 2 to 12 vol.%, wherein the porosity consists of unconnected, closed pores, which are uniformly distributed in the material of the bodies, characterised in that the pores are spherical and that they have a nominal diameter of 10  $\mu\text{m}$  to 48  $\mu\text{m}$ .  
5
2. Sintered silicon carbide bodies according to claim 1, characterised in that the pores have a nominal diameter of 15  $\mu\text{m}$  to 45  $\mu\text{m}$ .
3. Sintered silicon carbide bodies according to claim 1 or 2, characterised in that the inorganic component of the material contains of [sic] 80% to 98% silicon carbide, 0.5% to 5% carbon, 0.3% to 5% boron and 0% to about 20% of a hard material from the group of the borides and/or silicides.  
10
4. Sintered silicon carbide bodies according to claim 3, characterised in that the inorganic component of the material contains of [sic] 85% to 98% silicon carbide, 1.5% to 4% carbon, 0.5% to 2% boron and 0% to about 12% of a hard material from the group of the borides and/or silicides.  
15
5. Sintered silicon carbide bodies according to one of claims 1 to 4, characterised in that the silicon carbide is alpha-silicon carbide.
6. Sintered silicon carbide bodies according to one of claims 1 to 5, characterised in that burnout materials, such as polymers, waxes, starches or cellulose, are used as pore-forming agents.  
20
7. Sintered silicon carbide bodies according to claim 6, characterised in that polymethyl methacrylate (PMMA) is used as pore-forming agent.
8. Sintered silicon carbide bodies according to claim 7, characterised in that the pore-forming agent is added in a quantity of about 0.70 to 5.40 wt.%.

9. Sintered silicon carbide bodies according to claim 7 or 8, characterised in that the diameter of the particles of the pore-forming agent is in the range of about 18  $\mu\text{m}$  to about 57  $\mu\text{m}$  before the compaction of the green body.
10. Sintered silicon carbide bodies according to claim 9, characterised in that  
5 the proportion of particles with diameters of between 30  $\mu\text{m}$  and 45  $\mu\text{m}$  is about 80% of the total quantity.
11. Process for the production of sintered silicon carbide bodies according to one of claims 1 to 10, characterised in that the pore-forming agent is dispersed in the suspension of the inorganic raw material components of  
10 the material and, after shaping, the heat treatment required for the production of the sintered bodies takes place by pyrolysis and sintering.
12. Process for the production of sintered silicon carbide bodies according to one of claims 1 to 10, characterised in that the pore-forming agent is dispersed in the suspension of the inorganic and organic raw material  
15 components of the material and, after shaping, the heat treatment required for the production of the sintered bodies takes place by pyrolysis and sintering.
13. Process for the production of sintered silicon carbide bodies according to one of claims 1 to 10, characterised in that the suspension of the  
20 inorganic and organic raw material components of the material is dried and that the pore-forming agent is homogeneously mixed in the dry state with the already mixed inorganic and organic components, and after shaping, the shaping and heat treatment required for the production of the sintered bodies take place by pyrolysis and sintering.